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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,944	12/11/2003	Ian M. Williams	NVDA/P000875	7280

26291 7590 02/14/2005

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EXAMINER
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TUNG, KEE M

ART UNIT	PAPER NUMBER
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2676

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/732,944

Applicant(s)

WILLIAMS ET AL.

Examiner

Kee M Tung

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-17, 19-23 and 25 is/are rejected.
- 7) ☒ Claim(s) 7-9, 18 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/11/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims require "the controller is configured to transmit the timing signal to the graphics processing unit" which is unclear and confuse because the controller is inside and part of the graphics processing unit and this makes the claim reads like "the graphics processing unit transmits the timing signal to itself". This can be overcome by defining in the claims that "the graphics processing unit comprising a graphics processor" and change "the graphics processing unit" to "graphics processor" in claims 3 and 4. This is what the specification teachings (a graphics module comprising a graphics processor).

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-5, 14, 16 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Chu et al (5,530,798 hereinafter "Chu").

Chu teaches a graphics processing unit (Fig. 1, primary graphics processor 10) comprising a clock generator (Fig. 2, clock generator 40 or Fig. 3, time-base signal

generator 50) configured to generate a clock signal; and a controller (Fig. 3, primary/secondary system synchronizer 60) coupled to the clock generator, wherein the controller is configured to receive the clock signal (102), comparing the clock signal with a synchronization signal (120) to generate a timing signal (18 and 19), and transmit the timing signal to a second graphics processing unit (20 or 21). Therefore, at least claims 1 and 3-5 are anticipated by Chu.

Claims 14 and 16 are similar in scope to claims 1 and 5, and thus are rejected under similar rationale.

Claim 21 is similar in scope to claim 1, and additionally requires a graphics module comprising a first and a second graphics processing units (Fig. 1, processors 10, 20 and 21).

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6, 10-13, 17, 19, 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al (5,530,798 hereinafter "Chu").

The teachings of Chu are given in previous paragraph of this Office action. However, Chu fails to explicitly teach or suggest a vertical and a horizontal timing reset signal and a vertical timing reset signal counter. However, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to modify

the teachings of Chu particularly in view of the teachings of a horizontal counter (51); horizontal decoder (52); a vertical counter (53) and a vertical decoder (54) (further see col. 2, line 45 to col. 3, line 24). Therefore, at least claims 10-13, 19 and 20 would have been obvious.

Regarding claims 6, 17 and 23, Chu fails to explicitly teach or suggest "to transmit a stereo field signal from the first graphics processing unit to the second graphics processing unit. It would have been obvious to one of ordinary skill in the art at the time the present invention was made to modify the teachings of Chu in order to synchronize the multiple graphics processors without put all functions in one single chip as taught by Chu (col. 1, lines 23-31).

6. Claims 2, 15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al (5,530,798 hereinafter "Chu") in view of Morein et al (6,473,086 hereinafter "Morein") or Langendorf et al (6,760,031 hereinafter "Langendorf").

The teachings of Chu are given in previous paragraph of this Office action. However, Chu fails to explicitly teach or suggest each processing unit configured to generate a portion of image and the first and second portions synchronously form the image. This is what Morein or Langendorf teaches. Morein teaches a primary processor (110) processes a first portion of the image data and a second processor (150) processes a second portion of the image data and forming the complete image to the display (116). Langendorf also teaches a primary processor (310) processes a first portion of the image data and a second processor (320) processes a second portion of the image data and forming the complete image to the display (abstract). It would have

been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Morein or Langendorf into the system of Chu because by utilizing two or more processors to cooperatively process the image data for a frame, additional processing bandwidth can be leveraged to perform complex graphics processing operations as taught by Morein (col. 2, lines 43-54). Therefore, at least claims 2, 15 and 22 would have been obvious.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu et al (5,530,798 hereinafter "Chu") in view of Rostoker et al (5,761,516 hereinafter "Rostoker").

The teachings of Chu are given in previous paragraph of this Office action. However, Chu fails to explicitly teach or suggest the graphics module is implemented on a silicon substrate. This is what Rostoker teaches (Fig. 2). It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Rostoker into the system of Chu in order to obtain a high performance system with high bandwidth and reduce system cost as taught by Rostoker.

#### ***Allowable Subject Matter***

8. Claims 7-9, 18 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art made of record fails to anticipate or make obvious the claimed invention. Specially, the prior art fails to teach or suggest, in combination with the

remaining elements, the graphics processing unit further comprising a swap ready I/O element through which a swap ready signal is communicate to the second graphics processing unit, ..., as recited in claims 7, 18 and 24.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kee M Tung whose telephone number is 703-305-9660. The examiner can normally be reached on Tuesday - Friday from 5:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 703-308-6829. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kee M Tung  
Primary Examiner  
Art Unit 2676